

Safety

A key component of the 2005 gas tax package was improving highway safety with low cost investments. WSDOT has completed numerous capital projects, and also pursued special safety initiatives that have proven to be a low cost/high benefit way to make the statewide highway system safer for the traveling public. Statewide accident reduction and prevention measures, using low cost fixes, include cable median barriers and rumble strips.



Cable median barriers reduce fatal and serious injury collisions by 62%

Between 1999 and 2005, crossover collisions accounted for 13% of fatalities and disabling collisions. To reduce the risk of these accidents, WSDOT has installed 177 miles of cable median barriers, which reduce the risk of crossover collisions. WSDOT engineers analyzed the performance of the state's cable median barriers from 1995 through 2007 by reviewing nearly 2,550 collisions in the median.

They found:

- A 62% reduction of serious injury and fatal collisions (24.8/year to 9.5/year after installation).
- Annual cross median collisions decreased 73%.
- These reductions are significant: traffic volume grew 13% for the 177 miles of highway where WSDOT installed cable median barriers during this same time.

Collision rates after cable barrier installation

1995-2007

	Before	After	% Change
Annual serious injury and fatal median collisions	24.8	9.5	-62%
Annual serious injury median collisions	16.6	5.2	-69%
Annual fatal median collisions	8.2	4.4	-46%
Serious injury median collision rate (per 100 million VMT)	0.57	0.22	-61%
Fatal median collision rate (per 100 million VMT)	0.28	0.12	-57%
Median collision rate (per 100 million VMT)	7.64	14.66	+92%*

Source: WSDOT Gray Notebook, June 2008.

*Note: Collisions in the median routinely increase after any type of median barrier system is installed. An errant vehicle that may have been able to travel 30 or 40 feet into an open median before installation may only be able to travel 15 to 20 feet before it strikes a newly placed barrier.

Rumble strips work effectively to reduce cross-centerline collisions

WSDOT has installed centerline rumble strips on roughly 960 miles of Washington highways.

Rumble strips are grooves or rows of raised pavement markers placed perpendicular to the direction of travel to alert inattentive drivers. As a vehicle passes over the rumble strips, they produce noise and vibration, alerting the driver that they are drifting from their lane. WSDOT engineers have conducted preliminary evaluations of 518 miles that have been in place six months or longer, and the preliminary results indicate:

- A 28% reduction in all fatal and serious injury collisions.
- A 26% reduction in all cross-centerline collisions.
- A 50% reduction in fatal and serious injuries resulting from cross-centerline collisions.

Citizens speak out...

I-5 Everett HOV lanes

"WSDOT was a true partner and built the ramps with transit in mind, making them longer with better merges. This makes it easier and faster for drivers and commuters, and is the mark of superior planning."

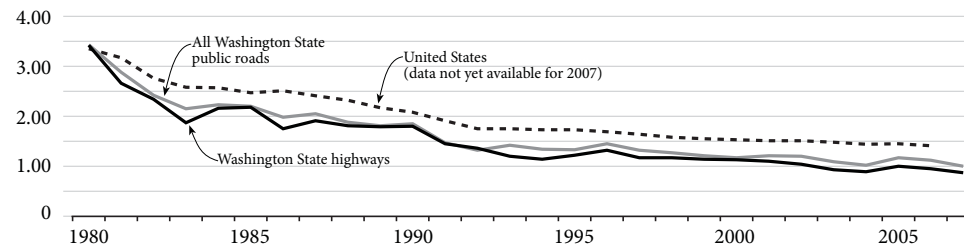
Joyce Eleanor, Community Transit

Traffic fatalities decrease by more than 10% in 2007

In 2007, traffic fatalities on state highways decreased 10.6% from 2006, and met the national target of 1.00 fatality per 100 million vehicle miles travelled. These reductions are due in part to new state laws, including making seat belts a primary enforcement law, tougher impaired-driving laws, increased enforcement (including speed and DUI patrols), and significant investments in highway safety projects: collectively, the 2003 and 2005 gas tax packages provided \$695 million to build 189 projects to improve safety.

Traffic fatality rates in Washington compared to the national average

Fatalities per 100 million VMT; 1980-2007



Source: WSDOT Gray Notebook, June 2008.

Data Sources: U.S. Fatalities/VMT: NHTSA Traffic Safety Facts; WA Fatalities; FARS; State Highway Fatalities; WSDOT-TDO; WA VMT; WSDOT-TDO.

For more information on WSDOT's commitment to making our roadways safer and less congested, please see:

www.wsdot.wa.gov/Safety/

www.wsdot.wa.gov/Congestion/

The Gray Notebook's electronic subject index gives readers access to current and archived performance information, including information concerning safety and congestion on state highways.

For a list of all 49 projects in the Before and After study see:

www.wsdot.wa.gov/Accountability/Publications/PerformanceDocuments.htm#graynotebook

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Delivering Safety and Congestion Relief on State Highways:

Project Benefits

October 2008

Paula Hammond, Secretary of Transportation



As of September 30, 2008, WSDOT delivered 167 of 391 projects funded by the 2003 and 2005 gas tax, valued at \$1.8 billion. Another 61 valued at \$2.7 billion are under construction and 43 valued at \$1.3 billion will go to bid in the next six months. Within the next six months, 69 percent of the 2003 and 2005 gas tax projects, valued at \$5.8 billion, will either be complete or under construction.

WSDOT continues to make highway improvements that reduce congestion and make our roadways safer

WSDOT is currently delivering the largest capital construction program in our state's history, including hundreds of projects that improve safety and reduce congestion. We are committed to delivering all of the 391 projects funded by the 2003 and 2005 gas tax efficiently.

WSDOT reports on project delivery performance each quarter in the Gray Notebook, the agency's performance report on transportation systems, programs, and department management. On an annual basis, WSDOT provides "Before and After" case studies of safety and congestion relief projects. In April 2008, Governor Gregoire challenged WSDOT to broaden its reporting of 2003 and 2005 gas tax project outcomes important to Washington citizens – specifically, measuring the results from the driver's perspective for each completed project.

This folio is an initial assessment of the impact of Nickel and TPA projects enhancing the mobility and safety of travelers on Washington's highways. The agency's annual Congestion Report, scheduled for release in November 2008, will include information on additional projects and operational improvements, such as traffic signal retiming and ramp metering. Highway safety before-and-after reporting will be updated in the Gray Notebook released in August 2009.

A sample of 21 completed 2003 and 2005 gas tax projects statewide show savings of more than 6,400 hours of travel a day—a 10% improvement.

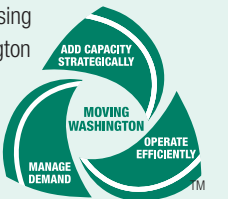
These improvements in travel time translate into nearly \$60 million a year in economic benefits to Washington commuters and businesses.

Forty-nine traffic safety projects have improved safety along identified high risk locations by reducing all types of collisions by 6%, and injury/fatal collisions by 14%.

Moving Washington projects improve travel times

WSDOT's program for addressing congestion is Moving Washington – a three-part strategy

comprised of operating the system more efficiently, managing demand, and adding highway capacity strategically. The 2003 and 2005 gas tax packages funded 391 projects to fight congestion and improve safety. The results of 21 of the 167 projects completed so far translate into nearly \$60 million a year in economic benefits to Washington commuters and businesses.



Mobility/Congestion relief

WSDOT performs before and after studies to assess project effectiveness and to report their impacts to the public. The projects examined in the table below do not include all completed mobility projects, only those with sufficient data to perform the analysis.

Before and After analysis of 21 selected congestion relief projects

Project	Project Cost (Dollars in thousands)	Estimated Minimum Speed (MPH)		% Chg	Travel Time (vehicle hrs/day)		% Chg
		Before	After		Before	After	
Benton County							
SR 240/I-182 to Richland Y - Add lanes	\$22,616	30	38	27%	2,114	1,888	-11%
SR 240/Richland Y to Columbia Center I/C - Add lanes	\$43,159	42	50	19%	1,105	1,012	-8%
Clark County							
I-5/Salmon Creek to I-205 - Widening	\$43,951	42	50	19%	2,817	2,502	-11%
Grant County							
SR 17/Pioneer Way to Stratford Rd - Widen to four lanes	\$21,025	43	47	11%	810	736	-9%
King County							
I-5/NE 175th St to NE 205th St - Add northbound land	\$8,733	35	35	0%	2,219	2,037	-8%
SR 161/Jovita Blvd to S 360th St, Stage 2 - Widen to five lanes	\$26,159	15	35	133%	1,819	1,194	-34%
I-405/SR 520 to SR 522 - Widening	\$81,762	37	43	16%	34,862	32,081	-8%
Kittitas County							
I-90/Highline Canal to Elk Heights	\$4,961	51	52	2%	918	891	-3%
I-90/Ryegrass Summit to Vantage	\$9,615	55	56	1%	2,672	2,623	-2%
Pierce County							
SR 161/204th St to 176th St - Widen roadway	\$15,264	30	42	40%	1,593	1,274	-20%
SR 161/234th St to 204th St E - Add lanes	\$15,634	36	44	24%	962	831	-14%
Snohomish County							
SR 9/SR 522 to 228th St SE, Stages 1a and 1b - Add lanes	\$24,471	18	40	122%	649	478	-26%
SR 9/228th St SE to 212th St SE (SR 524), Stage 2 - Add lanes	\$31,319	28	41	46%	577	470	-19%
SR 527/132nd St SE to 112th St SE - Add lanes	\$20,528	43	45	5%	592	575	-3%
Spokane County							
I-90/Pines Rd to Sullivan Rd - Add lanes	\$15,821	38	46	22%	3,731	3,326	-11%
I-90/Argonne Rd to Pines Rd - Add lanes	\$17,844	38	46	22%	3,090	2,752	-11%
Walla Walla County							
US 12/SR 124 to McNary Pool - Add lanes	\$12,091	47	55	18%	915	809	-12%
US 12/Attalia vicinity - Add lanes	\$16,200	53	57	9%	250	236	-6%
Whitman County							
SR 270/Pullman to Idaho state line - Add lanes	\$31,188	39	53	37%	1,778	1,522	-14%
Yakima County							
SR 24/I-82 to Keys Rd - Add lanes	\$50,233	37	45	22%	710	498	-30%
Whatcom County							
SR 543/I-5 to Canadian Border - Add lanes	\$50,806	39	46	18%	154	139	-10%
Total					64,336	57,874	-10%

*Dollars in thousands
Note: Volume information is based on traffic counts and speed information is based on modelled data. These 21 projects are those completed mobility projects with the necessary data to support a Before and After analysis. WSDOT received funding to purchase additional equipment to perform a greater number of and more precise Before and After studies in the future, and has been actively collecting data this summer.
Source: WSDOT

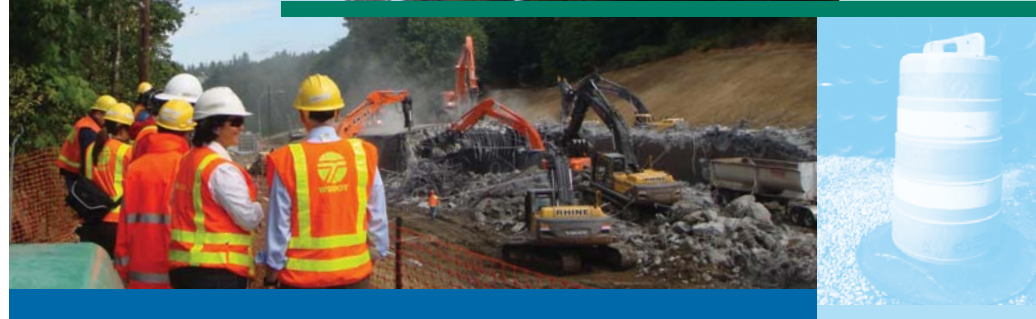
Citizens speak out...

I-90 Ryegrass Summit to Vantage, Additional Lane

"We have a win-win situation for trucks and cars. The trucking industry is extremely excited to see this project completed. Not only does the new climbing lane improve safety, but it helps the relationship between the trucking industry and the general traveler."

Brent Alderman, Washington Trucking Association

Project details



Clark County

I-5/Salmon Creek to I-205 - Widening

This \$44 million project, completed in October 2006, widened two miles of I-5 in Clark County to six through lanes, plus an additional lane in each direction between interchanges. In addition, the NE 129th Street overpass and the Salmon Creek/NE 117th Street bridges were replaced with structures that meet current design, safety, and seismic standards. This project was one of several aimed at improving traffic flow in the I-5 corridor between the Main Street interchange in Vancouver and the I-205 junction.

Result: Drivers' travel speeds have improved 19%, from 42 mph to 50 mph.

King County

I-405/SR 520 to SR 522 - Widening

This \$82 million project, the first of the multi-stage Kirkland Nickel project, was completed in October 2007. It added an additional northbound lane from NE 70th Street to NE 124th Street and southbound from SR 522 to SR 520.

Result: Based on travel speeds before and after the project was completed, drivers' speeds have increased by 16%, from 37 mph to 43 mph.

SR 161/Jovita Blvd to S 360th St, Stage 2

This \$26 million project to reduce congestion widened SR 161 to five lanes through the commercial area between Milton and Military Road in Federal Way, and to four lanes in residential areas. It was completed in July 2006.

Result: Travelers' speed improved 133% from 15 mph before construction, to 35 mph.

Snohomish County

SR 9/SR 522 to 228th St SE, Stages 1a and 1b Add lanes

This \$25 million project to reduce congestion widened SR 9 to four or five lanes from SR 522 to 228th Street SE, widened the westbound on ramp to SR 522 to two lanes, and installed one new traffic signal and upgraded two existing signal. It was completed in November 2007.

Result: The project improved drivers' speed from 18 mph to 40 – a 122% increase.

Spokane County

I-90/Argonne Rd to Pines Rd - Add lanes and I-90/Pines Rd to Sullivan Rd

These two projects, worth \$33.7 million, added an additional lane in each direction of I-90 between Pines Road and Sullivan Road to reduce congestion on this major freight route. They were completed in November 2005.

Result: Together, these projects improved travelers' speeds by 22%.

Yakima County

SR 24/I-82 to Keys Rd - Add lanes

This \$50 million project was completed in June 2007, and added a lane to SR 24 (from I-82 to Riverside Road), reconstructed the SR 24/Nob Hill Boulevard interchange, and built a new, wider bridge over I-82 and the Yakima River.

Result: Drivers' travelling speed have improved 22% from 35 mph to 45 mph.

Reducing traffic fatalities

WSDOT assesses safety projects – funded by both gas tax and pre-existing funds – by comparing a route's history for several years prior to construction with data collected after construction. Forty-nine projects completed between October 2003 and September 2005 resulted in a 6% reduction for all types of collisions (1,118 compared to 1,191), and a 14% reduction in all fatal and serious collisions (26 compared to 31).



Before and After results for 49 selected highway safety projects

Collisions per year

	All Types	Property Damage Only	All Injury/Fatal	Serious Injury/Fatal
Before Period Data	1190.8	687.2	503.7	30.5
After Period Data	1117.5	710.5	407.0	26.3
Percent Change +/-	-6.2%	3.4%	-19.2%	-13.7%

Source: WSDOT Gray Notebook, June 2008.

King County

SR 516/30th Avenue South Vicinity

Safety benefit: This project restricted left turns to and from SR 516 at 30th Avenue South, resulting in an 83% reduction in accidents. By placing center-curbs and signage to eliminate the left turns – which had accounted for nearly 85% of accidents – the average number of accidents dropped by 14, none of which had evident injuries (one with possible injuries) in the two years following the project. This was an improvement from an average of six possible/evident injury accidents in each of the three years before the project.

Kitsap County

SR 16/Burley-Olalla Intersection – Interim safety improvement project

This project, completed In 2004, provided an acceleration lane on eastbound SR 16, and re-stripped the intersection to limit crossing and turning movements.

Safety benefit: Before the project, there were 28 "entering-at-angle" collisions, two of which resulted in serious injuries. After the project was completed, there were five "entering-at-angle" collisions, with none of the collisions resulting in serious injuries.

Citizens speak out...

SR 11, Chuckanut Drive safety project

I want to thank the folks at Department of Transportation who listened to the safety concerns of the residents of Chuckanut Drive and studied the situation and then re-stripped the road to eliminate the passing zones. This will make it safer for me to turn into my driveway, walk along the road and ... I believe this change will save lives.

Lynn Trzynk